

ADVANCES IN
AUSTRIAN ECONOMICS

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VOLUME 3 • 1996



JAI PRESS INC.

Greenwich, Connecticut

London, England

THE COASE THEOREM AND STRATEGIC BARGAINING

Donald J. Boudreaux

Of course, if subjective values were... readily determinable... there would be less reason to force transactions into the market. It is the superiority of the market to the courts in determining subjective values that provides the major reason for the law's seeking to channel resource allocation through the market whenever possible.

— Richard A. Posner (1992, p. 221)

I. INTRODUCTION

Ronald Coase (1960) challenged the notion that externalities can be handled successfully only by centralized government intervention. Although the Coase Theorem is the predominant lesson drawn from Coase's work, this theorem is but a limiting case of a more fundamental insight driving Coase's analysis. In particular, Coase argued that the ability to freely buy and sell private property rights internalizes on owners the full costs and benefits that alternative uses of their properties impose on others. Thus, ability to bargain is sufficient to promote efficient resource allocation.

Advances in Austrian Economics, Volume 3, pages 95-105.

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ISBN: 0-7623-0055-8

Whether or not the Coase Theorem holds is inconsequential to economic efficiency. Focus on the Coase Theorem—that is, focus on all the conditions necessary or sufficient for this theorem to apply in reality—has diverted attention away from Coase's main insight regarding the role of alienable property rights. As a result, Coase's insights are pushed aside by debates over whether this or that institutional structure promotes or retards applicability of the theorem. Contrary to current wisdom, inapplicability of the Coase Theorem translates neither into inapplicability of Coase's fundamental insight nor into the conclusion that inefficient externalities persist. In other words, even if bargaining fails to generate a transfer of property rights, the act of bargaining itself communicates opportunity costs that promote post-bargaining efficiency.

In the next section I review the Coase Theorem as well as the set of real-world impediments identified as restricting application of the theorem. In Section III I argue that strategic bargaining caused by small numbers of potential parties to an exchange, unlike transaction costs borne of large numbers of affected parties, does not nullify Coase's more fundamental insight regarding the role property rights play in promoting efficient resource-use decisions. Thus, prohibitively high transaction costs generated by strategic bargaining have different effects, as assessed both positively and normatively, from high transactions costs caused by large numbers. Section IV offers a conclusion.

II. THE COASE THEOREM AND ITS APPLICABILITY

Prior to Coase's (1960) analysis, economists saw externalities as a problem to be solved by government regulation or taxation. Regulators would determine the socially optimal reduction of externalities and require those parties generating negative externalities to achieve this specified reduction. Alternatively, optimal taxation could achieve the same result by forcing private costs into line with social costs. The factory spewing soot on neighboring homes would take the cost of this soot damage into account if the factory were taxed by an amount equal to the marginal cost of this soot damage at each level of factory output. Regulation or taxation was believed to be necessary to compel the factory to produce the socially optimal amount of output and pollution.

Coase demonstrated that this Pigouvian view of externalities overlooks people's incentives to exploit gains from trade. Such incentives are created by the alienability of property rights. That is, when transaction costs are not so high as to stifle bargaining, the ability and willingness of persons ("victims") harmed by the activities of others ("injurers") to pay injurers to reduce or stop their harmful actions forces injurers to internalize the costs that their activities

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impose on victims. Whenever bargaining is possible, no government intervention beyond the specification and enforcement of property rights is required to achieve the socially optimal level of various activities.

The Coase Theorem is a special case of this insight. The theorem says that, under certain conditions, not only are all externalities internalized by bargaining, but the observed pattern of economic activity is independent of the law's initial assignment of property rights. There is one optimal pattern of resource use if market demands are invariant to alternative property rights assignments. This optimal pattern will emerge from unimpeded bargaining regardless of the law's assignment of liabilities for damage caused by resource use.¹

Transaction costs are the main impediment to applicability of the Coase Theorem. The theorem applies only if property-rights owners can bargain nonstrategically; if bargaining costs are excessive, or if bargaining breaks down prior to all possible utility-enhancing exchanges of property rights, the theorem does not apply. The literature, however, distinguishes two different sources of transaction costs: large numbers of potential bargainers and small numbers of potential bargainers. Both of these sources can make the theorem inapplicable, but, I argue here, only in the large-numbers case do transactions costs even potentially impede efficient resource use.

Consider first the case of a large number of victims. If soot emissions from a factory owning the right to pollute injure large numbers of homeowners, these homeowners face substantial organizing costs. Collective-action problems might well keep them from organizing into a cohesive body for purposes of bargaining with the factory. If so, these homeowners never approach the factory with an offer to buy the factory's right to pollute. If the factory owns the right to pollute, it will continue producing and polluting; if the homeowners are given the right to be free of factory pollution, the factory will shut down. Thus, in large-numbers cases the pattern of resource use is not invariant to the court's assignment of property rights.

In this example, transaction costs prevent the homeowners and the factory from confronting each other with buy and sell offers. Bargain-prohibiting transaction costs cause the pattern of resource use to depend upon the particular property-rights assignments.² Hence, if a different property-right assignment would have been better, exchanges won't occur to correct the inefficient court decision. Efficient resource use isn't guaranteed as it is when bargaining is possible.³

Now consider bargaining obstacles caused by small numbers. The problem here differs from that of the large-numbers case. With small numbers, the problem is strategic behavior and not inability of the parties to make buy and sell offers. That is, the problem is not that the parties are unable to negotiate with each other, but that their negotiation strategies may induce them to forego *exchanges* that less strategically-minded parties would consummate.

Small-numbers cases are plagued by strategic-bargaining possibilities because each party has some control over the price at which he sells or buys the right (Cooter 1982, 1991; Tirole 1988, pp. 22-23).⁴ There exists a finite range of prices over which mutually beneficial exchange may occur; no single determinate price confronts either party. The ability of the buyer to hold out for a lower price while the seller holds out for a higher price raises the possibility that mutually beneficial exchanges will remain unexploited due to strategizing efforts by one or both of the parties. William Landes and Richard Posner (1987, p. 34) point out that

one way to become an effective bargainer is to develop a reputation for being a hard bargainer. Sometimes this may require such hard bargaining that no bargain is struck—especially if the other party to the negotiation is a hard bargainer too—even though in principle there is a price that... would make both parties better off. The problem is that there is never a single price; it is always a range, and each party is eager to engross as much as possible of the range for himself.

This is an example of bilateral monopoly—an important source of transaction costs—and shows that the Coase theorem's assumption of zero (or negligible) transaction costs may not be fulfilled even in the apparently simple two-party case.⁵

Years earlier, Paul Samuelson observed that the problem of pricing a property right (or any other good) "is not solved by reducing it to a determinate maximized total whose allocation among the parts is an indeterminate problem in multilateral monopoly. It should come as news to no economist or game theorist that... bilateral and multilateral monopoly are indeterminate in their solutions." Samuelson argued that such indeterminacy weakens the relevance of Coase's demonstration that "laissez-faire pricing can solve the problem of 'externalities' and 'public goods' harmoniously" (Samuelson 1967, p. 123; see also Cooter 1982, p. 14; Tirole 1988, pp. 22-23). That is, "laissez-faire pricing," in this view, will not promote efficient resource use if one or both of the parties to a potential exchange of property rights attempts to bargain strategically for a larger share of the gains from trade.

Unfortunately, a great many real-world circumstances of incompatible uses of property rights (e.g., the factory-homeowner hypothetical) involve bilateral monopoly. Thus, because property rights are seldom sold in perfectly competitive markets, the Coase Theorem seldom describes real-world outcomes. I argue in the next section, however, that this fact does not imply inefficient resource use.

III. THE COASE THEOREM AND EFFICIENCY: NOT ONE AND THE SAME

Coase questions the empirical importance of bilateral monopoly, arguing that we witness too many successful bargains to conclude that bilateral monopoly

strategic-bargaining possibilities because at which he sells or buys the right. There exists a finite range of prices that can occur; no single determinate price exists; one party can hold out for a lower price while the other has the possibility that mutually beneficial strategizing efforts by one or both of the parties (1987, p. 34) point out that

develop a reputation for being a hard bargainer that no bargain is struck—because the hard bargainer too—even though in the long run the parties are better off. The problem is that each party is eager to engross as much as possible

important source of transaction costs—because zero (or negligible) transaction costs would make the no-party case.⁵

the problem of pricing a property by reducing it to a determinate price. The fact that parts of the problem are indeterminate problems means that no economist or game theorist can solve the problem of pricing in a bilateral monopoly are indeterminate in their determinacy weakens the relevance of pricing can solve the problem of pricing (Samuelson 1967, p. 123; see also Coase 1960, p. 3). That is, "laissez-faire pricing," which can be used if one or both of the parties in a bilateral monopoly attempts to bargain strategically for

circumstances of incompatible uses (as in the hypothetical) involve bilateral monopoly are seldom sold in perfectly competitive markets. Coase seldom describes real-world bargaining, but this fact does not imply

COASE'S THEOREM AND THE BILATERAL MONOPOLY

the bilateral monopoly, arguing that we can conclude that bilateral monopoly

generally frustrates mutually beneficial exchange (Coase 1988, pp. 161-163). Experimental studies support Coase's empirical assessment (see, e.g., Hoffman and Spitzer 1982; Harrison and McKee 1985). However, Coase's work can be defended on other, more fundamental grounds.

As argued earlier, large-numbers bargaining costs prohibit rights holders from expressing to each other their buy and sell offers. Potential parties to mutually advantageous exchanges in large-numbers scenarios never make offers to each other because collective-action problems thwart unified action by potential buyers or potential sellers. Parties with legal rights to engage in activities that conflict with resource uses by other parties never receive offers from these other parties. In small-numbers situations, in contrast, parties to mutually beneficial potential exchanges are not effectively barred from bargaining with each other. Buy and sell offers are made.

The existence of buy and sell offers is crucial. These offers, by themselves, are sufficient to internalize on parties holding legal rights to use resources in particular ways the social costs of using these resources in these ways. Because cost internalization occurs in the small-numbers case (but not the large-numbers case), resource use is efficient in the small-numbers case regardless of whether or not the Coase Theorem holds. Efficiency does not require actual exchanges of legal rights.

Imagine a factory spewing soot onto the property of a single neighboring homeowner. The factory causes \$100 damage per month to this homeowner, and the lowest-cost option for avoiding this damage is for the factory to shut down. Shutting down would cost the factory \$60 monthly in foregone net profit. As seen in Section II, standard Coasean analysis says that the homeowner will pay the factory owner some monthly amount between \$60 and \$100 in exchange for the factory's agreement to cease operating. But if we introduce strategic behavior, such exchange may not occur. That is, unlike in standard Coasean analysis, we cannot presume that just because there is a range of mutually agreeable prices for the right to pollute that such an exchange is inevitable. Strategically, the homeowner offers the factory, say, \$61 monthly for the factory's agreement not to pollute; the factory owner refuses this offer, informing the homeowner that he will close his factory for nothing less than \$99 monthly. If both parties refuse to budge on their offers, a seemingly mutually advantageous exchange does not take place. The factory continues operating and polluting, which it would not do if the homeowner had the legal right to shut the factory down or if strategizing efforts did not block what would otherwise be a mutually advantageous exchange of property rights. Thus, strategic bargaining can nullify the Coase Theorem.

Although strategic bargaining can nullify the Coase *Theorem*, such bargaining does not—contrary to the view of Coase, Landes and Posner, and others—nullify Coase's larger point that alienable property rights promote efficient resource use. Well-defined property rights are sufficient to guarantee

efficient resource-allocation patterns as long as holders of these rights can bargain unhampered by collective-action difficulties.

In the example of the strategizing homeowner and factory in which the factory owns the right to pollute, the factory immediately internalizes, as part of its costs, any offer outstanding from the homeowner. Whether or not the offer is accepted is inconsequential to economic efficiency. Efficiency requires only that the factory owner take account of—internalize—all marginal costs of operation when making production decisions. If the homeowner offers to buy the factory's pollution rights for \$61, the factory must either accept or reject this offer. If the factory accepts the offer (implying a decision by the factory not to behave strategically), the Coase Theorem holds. However, if the factory strategically refuses the \$61 offer and continues production, the factory nevertheless internalizes \$61 of the monthly cost it imposes on the homeowner. This is \$61 per month that the factory forgoes by not accepting the homeowner's offer. *The homeowner's offer itself instantaneously internalizes on the factory the cost that the factory imposes on the homeowner.*⁶ Importantly, if the factory refuses the offer, the external observer cannot legitimately conclude that an inefficiency persists.

Examine this result first from the perspective of the homeowner. By offering only \$61, the homeowner "purchases" the chance to buy a desired resource (cleaner air) at the relatively low price of \$61. The price the homeowner pays for this opportunity to acquire clean air for \$61 is the smaller chance that the factory will accept the offer of \$61. By increasing the amount offered to the factory owner (say, from \$61 to \$80), the homeowner sacrifices a relatively remote chance to secure clean air at a low price in exchange for a greater chance of securing clean air, but at a higher price. If the homeowner currently offers only \$61 to the factory, all we—as external observers—can conclude is that *at this moment* the cost to the homeowner of having his property soiled by emissions from the factory are no higher than \$61 per month. We are ill-positioned to assert that these costs are higher given that the person best positioned to know the true cost of the factory's soot emissions (the homeowner) offers only \$61 to avoid the pollution.

Likewise, if the factory owner refuses to sell his right to pollute for \$61, we can conclude only that, as currently assessed by the factory owner, the value of continued operation exceeds \$61. Of course, part of the value of continued factory operation in this example is the possibility that the factory will extract a higher price from the homeowner. By holding out, the factory owner "purchases" (for \$1, the difference between the \$60 profits earned by operating and the \$61 offer) the chance of securing a higher price for its right to pollute. But note: the current cost to the homeowner of the factory's pollution (\$61) is fully internalized on the factory. The factory owner has the option of taking the \$61 per month and shutting down, or of sacrificing the \$61 and continuing to operate. Because of this internalization, the economist cannot conclude that the outcome is inefficient.

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One reply to this subjectivist reckoning of costs is that it yields only unfalsifiable statements about whether observed economic phenomena are efficient or inefficient. However, the fact is that costs *are* subjective.⁷ Cost, an inescapable product of human decision-making processes, is the expected utility sacrificed by taking course of action A rather than course of action B (where B is the next best alternative to A in the mind of the decision maker). Thus, costs do not exist independent of a genuine decision-making process (Buchanan 1969, p. 27), and they are ultimately reckoned in utility terms—that is, as foregone utility. (Coase [1938] contributed to this subjective theory of cost.) The argument here is not that the external observer cannot know the true costs of any possible course of action taken by the observed person. Instead, the argument is that any observed or actual offers, counteroffers, acceptances, and rejections necessarily reflect the true costs felt by economic agents making these decisions at the various moments when these decisions are made. External observers cannot legitimately second guess actual decision makers.

The observing economist can, of course, legitimately assess the institutional setting within which people interact. If this setting effectively prohibits buy and sell offers, the economist can appropriately argue that potential gains from trade remain unexploited. The economist can also analyze the institutional forces that frustrate bargaining and suggest reasons why attempted correction of these forces is, or is not, advisable. In contrast, to the extent that the choice setting allows buy and sell offers to be made, it is impossible for an external observer to conclude that unaccepted offers (and, for that matter, accepted offers) are inefficient given the institutional setting and constraints.

To argue as I have here is not to deny that, *ceteris paribus*, the world would be a better place if all markets—including markets for legal rights—were so thick as to be perfectly price competitive. As a decentralized method for allocating resources, perfectly competitive markets are difficult to beat. Unfortunately, the conditions necessary for perfect competition to exist in reality never occur.

As with all things economists study, price competition itself is a scarce good. Consumers cannot afford it in unlimited quantities. The natural constraints of our world dictate that most goods, services, and legal rights be exchanged in so-called imperfectly competitive—sometimes even bilateral monopoly—markets.⁸ It is tempting to compare the results of imperfectly competitive markets with those of perfectly competitive markets and to declare the former to be inefficient. Such a comparison, however, is deceptive because perfectly competitive markets are not free; they can be neither created nor maintained costlessly.⁹ Because of the costs of creating and maintaining perfectly competitive markets, the fact that the hypothetical results of such markets are superior to the actual results of imperfectly competitive markets does not imply that perfectly competitive markets are efficient, on net, when compared with

their imperfectly competitive counterparts. We may lament the absence of perfectly competitive conditions in the market for most legal rights—which is another way of lamenting the absence of a single, determinant price of a particular legal right—but our lamentations mislead us if, as a result, we assert that imperfectly competitive markets for legal rights are inefficient, or if we overlook the efficiency-enhancing qualities of even strategic buy and sell offers.

The making of buy and sell offers by property-rights owners internalizes upon these owners the full subjective costs of alternative uses of their rights. Such internalization promotes efficient resource use even if the market for a particular legal right is not perfectly competitive and regardless of whether or not the Coase Theorem applies.

This concept of efficiency warrants further elaboration. Calling a state of affairs “inefficient” implies the availability of a superior and practical alternative to the current state of affairs. Thus, to insist that strategic bargaining problems engendered by the absence of perfect competition in markets for particular legal rights result in inefficiencies is to insist that an alternative superior to the making of offers and counteroffers—that is, superior to “laissez-faire pricing”—is available in such markets. However, the very “thinness” of the markets for particular legal rights makes it impossible for nonmarket solutions to mimic the outcomes of perfectly competitive markets (Vaughn 1980).

Any sound, centralized solution to an externality problem requires that government officials know the true costs and benefits of alternative courses of action open to all relevant parties. But parties to externality problems have even less incentive to reveal their true cost-benefit evaluations to government officials than they have to avoid strategizing with each other in bargaining situations. Strategic behavior is costly to bargainers precisely because such behavior jeopardizes mutually beneficial exchanges. The higher this cost, the lower are incentives to strategize and the less strategizing there will be. In contrast, Pigouvian and other centralized solutions increase the attractiveness of strategizing. Command-and-control solutions either mandate acceptable maximum levels of externality or establish tax tables for alternative levels of externality. In either case, the “victim” (e.g., homeowner) has incentives to overstate the harm he incurs from the externality, while the “injurer” (e.g., factory) has incentives to overstate the cost it faces in dealing with the externality. Because government officials have no way to know or to determine the true cost-benefit evaluations of parties to an externality problem, any government-imposed solution will necessarily be arbitrary. There is no reason to believe that such arbitrary government solutions will be superior, on the whole, to the outcomes of “laissez-faire pricing.” Indeed, because “laissez-faire pricing,” even in the small-numbers case, induces cost internalization upon property-rights owners, “laissez-faire pricing” appears to be the most efficient institutional arrangement for settling externality problems in small-numbers cases.

IV. CONCLUSION

Critics of Coase who argue that lack of perfect competition in the market for legal rights often nullifies the Coase Theorem are correct. Strategic behavior might very well render the pattern of resource use dependent upon the particular liability assignments of the courts. However, these critics are wrong to conclude that inefficiencies arise whenever the Coase Theorem is nullified by imperfectly competitive conditions in the market for legal rights. Inefficient patterns of resource allocation are caused by failure of property owners to internalize the costs and benefits that their property uses impose upon other property owners. Contrary to claims of many of Coase's critics—both friendly and hostile—strategic bargaining does not promote inefficient resource allocation. Strategic offers internalize upon property owners receiving these offers the costs that uses of their properties impose on other affected property owners. The allocational outcomes of this internalization process differ according to the intensity of each party's strategic behavior; however, any conclusion of inefficient resource allocation is unwarranted. Ability to bargain—strategically or not—is sufficient to internalize externalities and, hence, to assure efficient resource use.

ACKNOWLEDGMENTS

I thank Karol Ceplo, Louis DeAlessi, Mike DeBow, Harold Demsetz, Bob Ekelund, Roger Garrison, Randy Holcombe, Roger Koppl, Dwight Lee, John Lopatka, Hugh Macaulay, Adam Pritchard, Karen Vaughn, Bruce Yandle, and an anonymous referee for encouragement, criticism, and comments. Remaining errors are mine.

NOTES

1. See, for example, Robert Cooter (1982, p. 14): "The basic idea of the [Coase] theorem is that the structure of the law which assigns property rights and liability does not matter so long as transaction costs are nil; bargaining will result in an efficient outcome no matter who bears the burden of liability." Note that Cooter equates applicability of the Coase Theorem with the achievement of efficient outcomes.

2. Coase was interested in less-than-perfect bargaining in order, ultimately, to focus analytical light on real-world institutions that emerge to help people deal with the consequences of their inability to bargain fully with each other under conditions of imperfect information, asset specificity, opportunistic behavior, and other features of reality that impede frictionless exchange (see Coase 1988; North 1990; Williamson 1985).

3. Cooter and Ulen (1988, pp. 105-06, emphasis added) define what they call the "Positive Coase Theorem": "When parties can bargain together and settle their disagreements by cooperation, their behavior will be efficient regardless of the underlying rule of law...the assignment of legal entitlements makes no difference to efficiency so long as the parties can cooperate together *and bargain to an agreement.*"

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